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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/529,429	10/30/2000	Gunnar Bahlenberg	2867-0187-2	2247

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EXAMINER

PERILLA, JASON M

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 11/19/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/529,429

Applicant(s)

BAHLENBERG ET AL.

Examiner

Jason M Perilla

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,7,8,14,20 and 21 is/are rejected.
- 7) ☒ Claim(s) 2-6,9-13,15-19 and 22-26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☒ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### **DETAILED ACTION**

1. Claims 1-26 are pending in the instant application.

#### ***Priority***

2. A copy of application 9704009-1 filed in Sweden on November 3, 1997 is required for priority benefits under 35 U.S.C. 365(a).

#### ***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following items must be shown or the feature(s) canceled from the claim(s):

The figure(s) should show distinctly the difference between the group of "short" lines and the group of "long" lines. Further the figure(s) should show that FDD is employed at lower frequencies on the lines longer than X and that OFDD is employed at higher frequencies on the lines short than X.

No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### ***Specification***

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

#### ***Claim Objections***

5. Claims 12-13, and 25-26 are objected to because of the following informalities:

Regarding claims 12-13 and 25-26, ASDL is expected to be ADSL.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 7 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 7, the calculation of "timing advance" in line 2 of the claim is not enabled by the specification. One skilled in the art is not enabled to understand the definition of "timing advance" and is not enabled to calculate "timing advance" using the specification. Further, "timing advance" is not enabled simply by knowledge of the art.

Regarding claim 20, the calculation of "timing advance" in line 2 of the claim is not enabled by the specification. One skilled in the art is not enabled to understand the definition of "timing advance" and is not enabled to calculate "timing advance" using the specification. Further, "timing advance" is not enabled simply by knowledge of the art.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 8, 14, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cioffi (5673290) in view of Bingham et al (5680394).

Regarding claim 1, Cioffi discloses a telecommunications system having a plurality of data modems linked to a central station by subscriber lines of differing lengths (fig. 6; col. 7, lines 33-43), in which duplex data is transmitted between the central station and one or more modems using ADSL (col. 1, lines 31-33). Cioffi discloses that the subscriber lines are grouped into longer and shorter lines (col. 6, line 62 – col. 7, line 7). Cioffi further discloses that data is transmitted by using discrete multi-tone transmission (col. 2, lines 37-40). Discrete multi-tone transmission is known in the art as OFDD and is characterized by the use of multiple carriers for both the upstream and downstream transmissions. FDD is known in the art as dividing the upstream and downstream transmission channels in a wired communication system using different carriers. OFDD uses multiple "tones" (col. 1, line 25) or carriers and can accommodate higher bandwidth. Hence, OFDD modulation is capable of higher transmission rates, and FDD is capable of lower transmission rates. Cioffi teaches that systems of shorter loop distances are able to handle higher transmission rates, and systems with longer loop distances are limited to lower transmission rates (col. 6, line 62 – col. 7, line 7). Therefore, it would have been obvious for one of ordinary skill in the

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art at the time which the invention was made to utilize FDD for transmission over longer lines and OFDD for transmission over shorter lines because the shorter lines can accommodate the higher data transmission rates of OFDD and the longer lines are capable of the lower transmission rates that FDD provides. Cioffi discloses the use of ADSL but not explicitly the use of VDSL. However, Bingham et al teaches that VDSL is the latest generation of subscriber line intended to facilitate the highest possible transmission rates (col. 1, lines 62-67). Bingham et al further teaches that a proposed method of modulation for VDSL is OFDD using different frequency bands for the upstream and downstream communications (col. 2, lines 13-18). It is an advantage to use the fastest technique available for a subscriber service. Therefore, it would have been obvious for one of ordinary skill in the art at the time which the invention was made to utilize VDSL in the telecommunication system of Cioffi because it will provide the fastest possible communication link.

Regarding claim 8, Cioffi in view of Bingham et al disclose the limitations of claim 1 as applied above. Further, Bingham et al disclose VDSL using OFDD modulation with the upstream communication being accommodated at lower frequency bands and downstream communications being accommodated at higher frequency bands (col. 2, lines 13-18).

Regarding claim 14, Cioffi discloses a method in a telecommunications system having a plurality of data modems linked to a central station by subscriber lines of differing lengths (fig. 6; col. 7, lines 33-43), of which duplex data is transmitted between the central station and one or more modems using ADSL (col. 1, lines 31-33). Cioffi

discloses that the subscriber lines are grouped into longer and shorter lines (col. 6, line 62 – col. 7, line 7). Cioffi further discloses that data is transmitted by using discrete multi-tone transmission (col. 2, lines 37-40). Discrete multi-tone transmission is known in the art as OFDD and is characterized by the use of multiple carriers for both the upstream and downstream transmissions. FDD is known in the art as dividing the upstream and downstream transmission channels in a wired communication system using different carriers. OFDD uses multiple “tones” (col. 1, line 25) or carriers and can accommodate higher bandwidth. Hence, OFDD modulation is capable of higher transmission rates, and FDD is capable of lower transmission rates. Cioffi teaches that systems of shorter loop distances are able to handle higher transmission rates, and systems with longer loop distances are limited to lower transmission rates (col. 6, line 62 – col. 7, line 7). Therefore, it would have been obvious for one of ordinary skill in the art at the time which the invention was made to utilize FDD for transmission over longer lines and OFDD for transmission over shorter lines because the shorter lines can accommodate the higher data transmission rates of OFDD and the longer lines are capable of the lower transmission rates that FDD provides. Cioffi discloses the use of ADSL but not explicitly the use of VDSL. However, Bingham et al teaches that VDSL is the latest generation of subscriber line intended to facilitate the highest possible transmission rates (col. 1, lines 62-67). Bingham et al further teaches that a proposed method of modulation for VDSL is OFDD using different frequency bands for the upstream and downstream communications (col. 2, lines 13-18). It is an advantage to use the fastest technique available for a subscriber service. Therefore, it would have

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been obvious for one of ordinary skill in the art at the time which the invention was made to utilize VDSL in the telecommunication system of Cioffi because it will provide the fastest possible communication link.

Regarding claim 21, Cioffi in view of Bingham et al disclose the limitations of claim 14 as applied above. Further, Bingham et al disclose VDSL using OFDD modulation with the upstream communication being accommodated at lower frequency bands and downstream communications being accommodated at higher frequency bands (col. 2, lines 13-18).

***Allowable Subject Matter***

10. Claims 2-6, 9-13, 15-19, and 22-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art not relied upon above is cited to further show the state of the art with respect to digital subscriber lines.

U.S. Pat. No. 5991311 to Long et al; NEXT reduction.

U.S. Pat. No. 5483551 to Huang et al; Crosstalk suppression.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M Perilla whose telephone number is (703) 305-0374. The examiner can normally be reached on M-F 8-5 EST.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Chin can be reached on (703) 305-4714. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.



Jason M Perilla  
November 3, 2003

jmp



**STEPHEN CHIN**  
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